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ABSTRACT

Quality circles, a management practice that involves groups of workers from the same work area voluntarily meeting on a regular basis to identify, analyze, and solve various work-related problems, have been used in Japan for over 40 years. In the United States, quality circles have been tried in many organizations during the past 2 decades and more than 60 to 75 percent of the quality circle programs in the U.S. have failed. In this study, employees' perceptions of quality circle failure were investigated. A cross-section of 100 employees of an aerostructures fabrication and assembly plant completed a survey questionnaire concerning the failure of quality circles. Respondents included blue-collar workers who were quality circle members, middle-level supporting staff and supervisors, and top-management personnel. Survey results revealed seven major factors. The most important factor thought by respondents to contribute to quality circle failure was lack of top-management support, followed by lack of quality circle members' commitment, lack of problem-solving skills, quality circle members' turnover, the nature of the task, lack of support from staff members, and lack of data and time, in that order. Furthermore, top-management personnel attributed quality circle failure significantly less to the lack of top-management support than did middle-level supporting staff and quality circle members. (Author/NB)

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Attributions of Quality Circles' Failure: Perceptions Among Top-Management, Supporting Staff, and Quality Circle Members

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Abstract

Employees' perceptions of quality circle's (QC) failure are investigated in a survey. Seven major factors are identified: Lack of top-management support, lack of QC members' commitment, lack of problem-solving skills, QC members' turnover, the nature of the task, lack of support from staff members, and lack of data and time. Further, top-management personnel attribute QCs' failure significantly less to the lack of top-management support than did middle-level supporting staff and QC members.

Attributions of Quality Circles' Failure: Perceptions Among Top-Management, Supporting Staff, and Quality Circle Members

Once considered second to none, American industry in consumer electronics, steel production, textiles, and automobiles has lost much of their market share both at home and abroad and has taken a back seat to its competitors in recent years. Products made in the United States are perceived to be inferior to foreign goods.

The United States buy far more from oversees than it can sell in other countries which resulted in a large deficit. Most of this imbalance is generated by trade deficit in manufactured goods. During the last decade, Japan experienced a 5.5 percent annual growth rate in manufacturing productivity (a crucial indicator of industrial performance), whereas the United States barely had a 3 percent annual increase. Moreover, the rate of productivity improvement in America has fallen behind several Western European and Asian nations.

For example, in 1955, 96 percent of all radios sold in America were made in America. By 1965, the proportion was down to 30 percent, and by 1975, it was near zero. In the television market, American was down to one survivor in 1987--Zenith with a 15 percent market share. Recently, in the home video cassette recorders (VCRs) market, America surrendered without firing a single shot.

American factories are accused of inefficiency. The work force is considered to be indifferent and ill-trained. Further, managers are criticized for seeking quick profits rather than pursuing more appropriate long-term goals.

David A. Garvin investigated the responses from first-line supervisors in Japan and the United States and found that Japanese supervisors displayed a strong management commitment to quality, whereas U.S. supervisors expressed far less concerns on quality but with a heavy emphasis on meeting production schedules (1). David A. Garvin mentioned that in a 1981 survey, 50 percent of American consumers believed that the quality of U.S. products had dropped during the previous five years. Concerning people's perception of U.S. products, more recent survey showed that 25 percent of consumers are "not at all" confident (2).

W. E. Deming stated in 1982 that 85 percent of the problems found in American industry can be attributed to management. To meet the competitive challenge, American corporations have to outrun their competitors and change the fundamental way in which they organize and manage people in order to attain, retain, or regain a leading position in world markets. Quality and productivity improvement, participative management, and quality circles (QCs) have become buzzwords across corporate America.

For the past twenty years, Japanese management practices have attracted a lot of attention in the U.S. QCs are rapidly becoming a genuine movement throughout the industrialized world and have been considered as one of the most promising approaches to improving American workers' productivity. A quality circle is a group of workers from the same work area who voluntarily meet on a regular basis to identify, analyze, and solve various work-related problems.

The use of QCs is concerned with an organization's most valuable resource, one which is virtually untapped, its people. QCs, rooted historically in the humanistic tradition, can be a powerful ally in solving problems and improving efficiencies in an organization's operations.

It should be pointed out that in Japan, QCs have been used for more than 40 years. In the U.S., Lockheed Missiles and Space Company began the first QC program in 1974. Since then, many well-regarded large companies such as IBM, TRW, Honeywell, Westinghouse, Digital Equipment, Boeing Aerospace company, and Xerox used them a lot. At the peak of QCs' operations in the mid-1980s, it was estimated that over 90 percent of the Fortune "500" companies have QC programs in their structures and over 200,000 American workers have been in QCs (3).

In an article published in Harvard Business Review, Lawler and Mohrman stated that the popularity of QCs can be explained by the following factors: (1) The programs are accessible and can be purchased as a standardized package, (2) QC program is a parallel structure that is separate and distinct from the regular ongoing activities of an organization and does not have to involve everyone, therefore management can easily control the program, (3) QCs have no decision-making power, managers do not have to give up any control or prerogatives, and (4) QCs symbolize modern participative management. QCs are a fad. They concluded that QCs have their distinct advantages but that they have inherent in their design numbers of factors that often lead them to self-destruct.

In the U.S., QCs have been tried in many organizations for less than two decades. However, more than 60 percent to 75 percent of the QC programs have failed. Lawler and Mohrman also discussed six developmental phases of QCs and 17 threats to their continued existence (3). Both researchers and practitioners have expressed increasing concerns over the causes of QCs' failure.

For the past several years, the first author of this article and his associates (Peggy S. Tollison, and Harold D. Whiteside) have examined a QC program of a major structures fabrication and assembly plant in the southeastern U.S. (4-7). They investigated the differences between active (thriving) QCs and inactive (disbanded) QCs and found that active QCs have lower rate of problem-solving failure, higher attendance rate at QC meetings, and higher net savings of QC projects than inactive QCs (7) (Note 1). Further, they revealed that 75 percent of the 44 QCs examined have dropped at least one QC project. Over the years, in this particular organization, the number of QCs has been dropped from 53 in 1984 to 6 in 1990. Therefore, it is an interesting phenomenon that needs to be investigated.

Note 1. In that study, active and inactive QCs were operationally defined as follows: For these inactive QCs, none of the QC members wanted to continue the QC problem-solving process and managers in the area did not have interests in and support for these QCs, whereas for active QCs, members met regularly and continued to solve work-related problems. Therefore, these inactive QCs failed to exist and were no longer there.

In the present paper, the perceptions provided by top-management, middle-level supporting staff, and QC members (hourly workers) on QCs' failure were documented and investigated. Relevant literature is reviewed briefly as follows.

Factors Related to QCs' Failure

Based on our review of the literature, the success of an organization's QCs program is related to the efforts of several "agents" in an organization such as top-management, middle-management, and QC members, as well as "tasks" such as the nature of the task, necessary information and data, and the timing of the project in a business cycle. We will explain each of these factors as follows.

Top-Management. As many practitioners and researchers have pointed out again and again, top management support seems to be the key factor in the success of QC operations. Several key terms such as: top management involvement, total organizational commitment, management support, and management participation have been mentioned in the literature. It is clear that top management involvement is essential in setting up the policy and guidelines and promoting more funding, participation, guidance, and cooperation throughout the company. On the other hand, inadequate funding, lack of financial support, or management's unwillingness to invest a large amount of money to support QCs may also cause QCs to fail. The lack of recognition of circle accomplishments is also very critical (3).

QC Members. QC members' motivation, commitment, cooperation, and effort in solving their problems may have significant impacts

on the success or failure of QCs (4,5). The lack of QC members' problem-solving skills and training and lack of knowledge of operations are threats to QCs' survival (3). Low volunteer rate and the stability of the QC membership may also influence QCs' problem-solving process (3).

Middle-Management (Supporting Staff). In our own research, we found that QCs with high management support have worked on more projects and have a higher amount of cost savings than those with low support (4-6). Resistance by staff groups and middle management and prohibitive costs are threats to QCs' survival (3).

Task. The nature, scope, and the size of the project are also related to the final outcome of the QC success. In other words, if the project is too big, complex, and complicated for QC members to handle, then, these people may not be able to solve the problem, even though it is a worthwhile project. Moreover, the timing of the project and business cycles of the organization seem important also. For example, if a project is near its completion, then the management may be less willing to invest a large amount of money to improve the quality of this project. Finally, the availability of necessary data, information, and time to solve the problems is also very critical to the success of QCs' operations.

It has been suggested that there is a tendency toward higher satisfaction and positive attitudes with increasing tenure in QCs. Therefore, individuals' tenure in QCs and their perceptions are also examined. Further, unsuccessful QCs tended to have members with significantly lower self-esteem than did the successful QCs. People will develop attitudes and behave in ways that will maintain

their level of self-esteem. Therefore, individuals' self-esteem was also measured in the present study.

Research Method

Measures. We examined the major variables cited in the literature and also interviewed key QC personnel in the organization to compile a list of items that contribute to the QCs' failure. After several revisions, a 24-item questionnaire was constructed. Besides these items, we also included Rosenberg's 10-item measure of self-esteem, the overall contribution of QCs to the effectiveness of the whole organization, and the overall contribution of QCs to their job satisfaction. Further, the participants' demographic variables (i.e., age, sex, education, tenure in organization, tenure in QCs) and their self-reported ratings concerning the performance of QCs (i.e., the number of projects attempted, dropped, and completed) were also measured. A 7-point Likert-type scale was used for the survey.

Survey Participants. A cross-section of 100 employees (24 females and 76 males) of an aerostructures fabrication and assembly plant in the southeastern United States completed the survey questionnaire concerning QCs' failure. These participants were selected from each key area of the work responsibilities and levels within the organization. They were also selected due to their participation in QC projects and their experience, knowledge, and expertise in QCs.

These 100 participants could be classified into three groups. There were 41 QC members (i.e., blue-collar hourly workers), 35 middle-level supporting staff (i.e., 16 first-line supervisors; 19

salaried QC-supporting staff--plant engineers, quality engineers, industrial engineers, and QC facilitators), and 24 top-management personnel (i.e., 16 managers and superintendents; 8 directors and vice presidents). The average age of these people was 41.64 years old. They had about two years of college and had been with the company for over 12 years and had been involved in QCs for about two and a half years.

Survey Findings

Attributions of QCs' Failure. The 24 items were grouped into major factors using factor analysis. Only items with a factor loading of .40 or greater were selected. Therefore, only items that were significantly related to the factor were selected.

Our results show that employees' perceptions concerning the QCs' failure can be identified by the following seven major factors:

(1) Lack of Top-Management Support,

(2) Lack of QC Members' Commitment,

(3) Lack of Problem-Solving Skills,

(4) QC Members' Turnover,

(5) The Nature of the Task (Project),

(6) Lack of Support From Staff Members, and

(7) Lack of Data and Time.

The relative importance of these factors (i.e., the amount of variance explained by each factor) and the relative importance of the items related to the factor (i.e., the factor loading of each item) are presented in Exhibit 1.

Exhibit 1 shows that the most important factor can be identified as "lack of top-management support". This factor can be used to explain 21.3 percent of the overall causes of QCs' failure. Six items are related to this factor: Lack of financial resources, commitment, recognition, support, communication, and feedback. Lack of financial resources (money) seems to be the most important item related to this factor. These items are all arranged according to the amount of contribution and the order of importance as related to the factor.

Following the format mentioned above, the rest of Exhibit 1 can be also explained as follows: The second major factor deals with lack of commitment, cooperation, effort, communication, and accountability of QC members. The third major category is the lack of problem-solving skills. Factor four deals with stability of QC membership. Factor five seems to be related to the nature of the task or QC project which is specifically related to the business characteristics of the organization. Lack of support from staff members (Factor six) and lack of data and time (Factor seven) are also related to different aspects of management support and commitment.

Demographic Variables. The mean, standard deviation, and the relationship between these seven factors and demographic, performance, and subjective satisfactions are presented in Exhibit 2. Our results suggest that people have been involved in QCs for a longer time period are less likely to claim lack of support from staff members as a source of QCs' failure. It is possible that members with longer tenure in QCs may have seen support

offered by middle management. Or, those with more support will simply last longer.

Insert Exhibit 1 and 2 about here

Those who have longer experience with QCs tend to consider that QCs' failure is related to members' commitment and membership turnover. These results may reflect the QC operations in the organization at the time of the study. In fact, this organization has experienced a large amount of lay offs (700 employees) due to the completion of a large government contract.

Thus, workers with higher seniority will be transferred from one part of the organization to another and replace workers with lower seniority who, in turn, will replace workers with less seniority, i.e., "bump and rolls" in the lay off process. The constant change of membership in QCs may lead to QC members' frustration, priority changes, confusion, and lack of consistency.

Further, QC tenure was also correlated with age and job tenure. People with high self-esteem have a low tendency to perceive lack of top-management support, lack of data and time, and lack of support from staff members as sources of QCs' failure which supports the notion that high self-esteem subjects will be more positive and will develop attitudes and behave in ways that will maintain their level of self-esteem.

It is also interesting to know that self-esteem is positively related to survey participants' status in the organization. Those with higher status (i.e., supporting staff, facilitators, middle-,

and top-management) have higher self-esteem than those with lower status (i.e., QC members).

Moreover, it is possible that high self-esteem and high status participants have provided support to QCs and, thus, reported less problem with support from the top-management and staff members (i.e., middle-level management). Thus, the present results may reflect employees' motivation for self-protection in making attributions.

QC Performance Variables. The number of projects dropped was significantly correlated with members' turnover which signifies the importance of membership stability in QCs. The number of projects completed was also related to subjects' status in the organization. This reflects the fact that QC members reported the completion of projects in a single QC, while top-management, facilitators, and supporting staff reported the completion of projects from several QCs. Educational level and subjects' status were also significantly correlated. Thus, it is easy to understand the significant correlation between the level of education and the number of projects attempted and completed. The number of projects attempted and completed were related to lack of support from staff members. It is plausible that participants tend to protect themselves and claim credits in making attributions.

Subjective Satisfaction. These employees also reveal the perception that a high level of support from staff members is associated with QCs' ability to increase the effectiveness of the organization, which, in turn, is positively correlated with the perception that the nature of the task is one of the major sources

of QCs' failure. Those who experienced higher job satisfaction due to QC experiences also tend to perceive the nature of the task as a source of QCs' failure. In a sense, these individuals reporting positive QC attitudes and satisfaction are making external attributions (blaming the task) for QCs' problem-solving failure.

Individuals perceiving higher impacts of QCs on organization's effectiveness tended to be those who are female, less educated, and with longer tenure. The perception that QCs have positive impacts on job satisfaction was shared by females and less educated people. Thereby, for females and less educated people, QCs may have strong positive impacts on their perceptions of overall job satisfaction and organizational effectiveness.

Our results clearly identified seven factors related to QCs' failure. Three factors--lack of top-management support, lack of data and time, and lack of support from staff members--seem to be related to the support functions of QCs. These factors may reflect the organizational climate and culture of the organization.

Factor four--QC members' turnover and Factor five--the nature of the task are directly related to the specific characteristics of the organization and the timing of business operations. Therefore, these two factors are very specific to the organization. Factor two--lack of QC members' commitment can be explained by the combination of the aforementioned factors, or it may also truly reflect the type of workers in the organization and their behavior in QCs, such as social loafing (4).

Further, lack of problem-solving skills is a specific factor which may be taken care of by offering training programs to QC

members. However, it is speculated that with the lack of commitment, time, and money for QCs, top management may not perceive that as a problem. Or, management may perceive that workers are not committed to QCs, therefore, training is a waste of time and money.

Differences Among Top-Management, Supporting Staff, and QC Members. We also examined the possible differences among top-management, middle-level supporting staff, and QC members on their perceptions of QCs' failure. As expected, top-management attributed QCs' failure significantly less to the lack of top-management support than did middle-level supporting staff and QC members. No other significant results were found among the three groups of participants.

Several possibilities are speculated based on this significant results. First, management personnel at the top of the organization make defensive attributions. Second, top-management personnel simply do not know that lack of top-management support exists, while supporting staff and QC members perceive that as a major problem. Third, the top-level managers are aware of the existence of the problem, but they are not willing to admit it. Fourth, it is also possible that top-level managers simply try to ignore it and adopt the ostrich policy. Therefore, management may have shown the lack of commitment and support for the QC program.

If management is not fully committed to QCs, then, QCs will not be able to solve problems and will not be able to survive. In fact, after the completion of our data collection, a whole group of

organization development personnel (related to the operation of QCs) was laid off which showed the crux of the matter.

QCs are formed to solve problems. However, if QC are not instrumental in achieving individual and group goals, then, QC members will not participate in problem-solving activities and will give up their interests in QCs.

As we discussed earlier, American factories are accused of inefficiency; the work force is considered to be indifferent and ill-trained; managers are criticized for seeking quick profits rather; and American consumers have lost their confidence in the quality of U.S. products. The use of quality circles has been considered as one of the most promising approaches to improving workers' productivity and quality of products. QCs in Japan are still thriving, while QCs in the U.S. have failed in more than 60 to 75 percent of the organizations in which they have been tried. It appears that even QCs in the U.S. are not working as well as we expected. We agree with W. E. Deming's statement that 85 percent of the problems found in American industry can be attributed to management. Based on the results of the present study, these managers and employees' attributions seem to support these notions and common beliefs. It is plausible that if managers and workers treat QCs as fads and do not believe that QCs will work, then, they may fall into the trap of the self-fulfilling prophecy.

Lack of Money?. It should be pointed out also that the most important element concerning the lack of top-management support is "lack of financial resources (money) in the budget to fix the

problem and implement the solution". Therefore, it appears that the major problem seems to be related to the financial issue.

Let us also look at some interesting facts. Recently, there are several reports concerning the large disparities in the amount of money and benefits paid to the three American auto chiefs and their Japanese counterparts when the U.S. auto industry is experiencing one of its worst years, while the Japanese auto industry is thriving (8). In fact, Chrysler's Lee Iacocca, Ford's Harold Poling, and GM's Robert Stempel were paid a total of $7.3 million-plus in 1990, while Toyota's Shoichiro Toyoda, Honda's Nobuhiko Kawamoto, and Nissan's Yutaka Kume earned a total of $1.8 million.

Since the January of 1992, American companies have laid off about 2,600 workers a day, while American top executives' base pay has increased about 6 percent to $690,000. CEOs in America receive 160 times the salary of the average worker, while CEOs in Japan earn less than 20 times that of the average worker (9). Purvin stated that "it's not the Japanese who are the culprits in America's economic demise. It's corporate executives like the ones who took the trip with President Bush [to Japan in 1992] who are economically raping the U.S." (9).

In February, 1992, sensing the significantly growing outrage, Securities and Exchange Commission chairman Richard Breeden unveiled a set of reforms that will make corporate boards think twice before handing out multimillion-dollar pay-checks to top executives. Under the SEC's plan, shareholders who owns $1,000 or 1 percent of a company's stock can insert a proposal in a firm's

proxy statement that calls for a vote on an CEO's compensation package and thus could pressure CEOs to settle for something more modest (10). We wonder if this type of information will help the American public establish their confidence in American companies' investments in human resource and programs such as quality circles. We need to think about this.

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Exhibit 1

Attributions of Quality Circles' Failure

Item		Loading
	Factor 1: Lack of Top-Management Support	(21.3%)
1.	Lack of financial resources (money) in the budget to fix the problem and implement the solution	.81
2.	Lack of commitment from top management	.77
3.	Management does not offer enough recognition for the achievement of QCs	.71
4.	The "grapevine" has indicated that top-level management will not support the QC project	.69
5.	Poor communication channels to top-management	.65
6.	Lack of feedback from management concerning QC problems which can not be resolved	.63
	Factor 2: Lack of QC Members' Commitment	(18.2%)
7.	Poor cooperation among members of the QC	.87
8.	Lack of commitment of QC members	.84
9.	Lack of effort of QC members (some are involved in social loading in meetings)	.77
10.	Lack of communication among QC members	.72
11.	Lack of accountability of each member's contribution to QC project	.57
	Factor 3: Lack of Problem-Solving Skills	(8.7%)
12.	Poor problem-solving skills	.88
13.	Poor training for QC problem-solving	.78
14.	Poor selection of QC projects in the first place	.71

Table continues

Exhibit 1

Item	Loading
Factor 4: QC Members' Turnover	(7.8%)
15. QC members' turnover which affects the team's ability to complete a project	.91
16. QC members' turnover which affects the priority of QC projects	.88
Factor 5: The Nature of the Task (Project)	(6.1%)
17. The potential solution is not cost effective	.88
18. The program or business base is near completion	.79
19. The QC problem is already solved by the management	.57
Factor 6: Lack of Support From Staff Members	(5.1%)
20. Lack of support from the first-line supervisor	.83
21. Lack of support from the area manager	.68
22. Support functions do not respond (e.g., purchasing, industrial engineering) often do not respond to the data/information needed by QCs	.65
Factor 7: Lack of Data and Time	(4.2%)
23. Lack of sufficient data to further pursue the QC project	.88
24. Lack of sufficient time to collect data or information for the QC meeting	.80

Note. The amount of variance explained by the factor is presented in parentheses.

Exhibit 2

Mean, Standard Deviation, Correlations, and The Nomological Network of The QC Attribution Survey

			Factor						
Variable	M	SD	1	2	3	4	5	6	7
The QC Attribution Survey									
1. Top	29.22	8.19	(85)	03	-15	07	-06	55	46
2. Member	18.85	7.05		(87)	31	42	31	21	00
3. Skills	10.02	4.12			(77)	13	23	02	09
4. Turnover	8.37	3.31				(91)	33	09	10
5. Task	11.77	3.92					(74)	13	14
6. Staff	12.95	4.12						(69)	32
7. Data/Time	8.25	3.33							(82)
Demographic Variables									
8. Age	41.64	8.44	-24	-03	-13	-07	-06	-25	-16
9. Sex (Male=1, Female=0)			-01	10	01	21	01	06	02
10. Education	13.85	2.00	04	28	19	25	07	18	-14
11. Tenure	148.19	94.67	-30	-01	-11	-14	-06	-37	-11
12. QC Tenure	30.46	20.47	-13	28	06	23	13	-23	-09
QC Performance									
13. Attempted	14.63	34.89	13	06	-12	15	07	19	10
14. Dropped	3.89	5.42	08	15	-05	19	10	17	06
15. Completed	9.14	30.09	15	06	-12	16	09	22	13

Table Continues

Exhibit 2

Variable	M	SD	Factor 1	2	3	4	5	6	7
Subjective Rating									
16. Organ.	4.72	1.63	-14	05	-03	-16	20	-19	-02
17. Satis.	4.63	1.78	05	01	-05	-10	18	-04	06
18. SE	60.22	7.28	-18	-13	09	-05	-10	-23	-34

Note. All decimals have been omitted for correlations. If $r = .18$, $p < .05$; if $r = .24$, $p < .01$; if $r = .30$, $p < .001$. Sample size varies from 96 to 100 for most of these variables. Tenure and QC Tenure are expressed in months. Item 16 shows the overall contributions of QCs to the effectiveness of the whole organization. Item 17 shows the overall contribution of QCs to participants' job satisfaction. Item 18 reveals participants' self-esteem score. The reliability coefficient (Cronbach's alpha) for each factor is presented in parentheses.